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A Method of Budding the Walnut

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A METHOD OF BUDDING THE WALNUT.

Many difficulties have confronted tne nurseryman and the orchardists alike in the propagation of the best varieties of our English walnuts. Various methods of nursery grafting and budding have been employed with varying success. In general the percentage of unions has been very small, resulting in a consequent high priced tree. The method of budding as outlined in the following paragraphs consists in the combination of the old principles adapted to new subjects and conditions. By this method, and the exercise of ordinary care, with good buds, and one year old seedlings, at least 70 to 90 per cent of the buds should take and form satisfactory trees.

STOCKS.—Various stocks have been employed, and among these may be mentioned the English, the American Black, and the hybrid between the California Black and the English. The best of these under conditions such as are found at Corvallis, and on some of the hill soils of the Willamette Valley, is the California Black, and the least desirable the English. The hybrid is very frequently used, but in some cases is not dependable, such stocks being very variable, some giving a good root system and others poor.

BUDS USED.—Up to the present time, usually buds of the current year's growth have been employed in attempting to bud the walnut. This is unsatisfactory from several standpoints. In the first place the bark on the current year's wood is exceedingly tender, and the outer layers are very apt to be rubbed off in handling. Second, the leaf stem is attached below the bud, and if this is removed before the bud is inserted a large scar is left, which is a source of oxidation and loss of moisture, both of which tend to prevent a satisfactory union. If this stalk is left on the bud it is very difficult to tie properly. This difficulty has been avoided somewhat in the past by cutting off the leaf several days before the buds were taken for budding, and the remaining leaf stalk soon shrivels and falls away.

In the method as outlined in this article buds one year old are used. These will be found at the base of the current year's growth. Only those plump buds which have remained dormant are to be employed, although if material is scarce smaller buds may be used, but they do not break with the same ease that the larger buds do. The buds to be used are shown at "A" in the illustration. (Plate 1, Fig. 4.)

It is also possible to use buds from cion wood cut during the winter, or very early spring, when it is in a perfectly dormant condition. If such cions are placed in moist sand for a couple of weeks before the budding is done the buds may be removed quite easily. We had very fair success using such buds the past year, and although the labor is somewhat increased in removing the buds from the stick, yet there are more large, plump buds available than if taken later in the season, when many of the desirable buds have broken into shoots.

MAKING THE BUD.—(1) The Hinge Bud: About one inch above the surface of the soil make a transverse incision about half an inch long, and a similar one about three-fourths of an inch above this. Connect the two with a longitudinal incision. This forms the completed "I" cut on the stock. It is very desirable to use extra care in making these cuts. The ideal condition is to merely penetrate the bark just to the wood but not cut into it. The bud, which is rectangular and of exactly the same length as the distance between the two transverse cuts on the stock, is removed from the bud stick by first making two transverse cuts of the proper distance apart to give the correct length to the bud, and then connecting these by two longi-

tudinal cuts about half an inch apart. The bud proper should be approximately in the center of this piece. The bud is then easily removed by gently inserting the back of the knife blade under one corner of the piece of bark, and prying up, when it will be found that it will readily part from the bud stick. No wood should be removed with the bud, and care should be taken when the bud proper is extra large to avoid pulling the soft wood or core out of it. It may be necessary in such a case to first loosen the bark containing the bud on one side up to the bud proper, then carefully cut this soft core with a knife, and the remainder of the bud piece may be easily removed. As soon as the bud is removed from the bud stick it should be immediately inserted into the stock. This is readily accomplished by first carefully turning back the upper corners of the "I" shaped cut, slightly prying them away from the wood, then inserting the base of the bud into the opening, pushing it down until the top and bottom of the bud are flush with the transverse cuts on the stock, and the bud lies smoothly and snugly against the latter. By making the bud force its own passage under the bark of tne stock after this manner there is much less exposure to the air than if the sides of the cut are first turned back and the bud then laid in place. The bud is now ready for tying and waxing as explained below.

(2) The Flute Bud: In this method of budding it is best to first shape the bud and then cut the stock to fit it. The bud, which is rectangular, about three-fourths of an inch long, and five-eights of an inch wide, is made and removed from the bud stick exactly as in the preceding. A similar piece of bark is removed from the stock and the cion bud is then put in its place, taking care to see that the sides of the bud fit up snugly all around.

The T and inverted ⊥ buds proved unsatisfactory in our work.

In either case after the bud is well in place on the stock the two are wrapped snugly with raffia. Special care should be exercised in the wrapping to see that the bud is pressed firmly against the wood of the stock, especially at the center where the bud proper is located. Much of the success of the operation depends on proper wrapping. In many cases there is a prominent elevation where the leak stalk has become detached, and unless care is used in pressing this down firmly in the tying it will draw away and no union will result. When properly tied wrap the entire bud with waxed cloth to keep out moisture and air, and wax all over with some good wax. The following is recommended:

(Grafting Wax.)

Rosin, 5 pounds. Finely pulverized wood charcoal, ½ pound
Beeswax, 1 pound. Raw linseed oil, 1 gill

First melt the beeswax and rosin, add the charcoal, stirring constantly, and then add the oil. Mould into cakes by pouring into greased pans. When desiring to use break off a few lumps, melt and apply in a liquid state with a brush or swab.

A more rapid method of making the bud air tight is the following: After trying with raffia tear a small piece of soft paper, newspaper is good, about one and a half by two inches, then holding this in place over the bud thoroughly wax over the whole and in addition about one-half to three-fourths of the way around the stock. The paper prevents the wax from getting into the bud, but even should this happen it would cause little trouble, as the buds in starting will break through a light covering of wax. During warm weather it is a good plan after waxing to tie a piece of paper or paper sack split down the side over

the bud to protect it from the sun. If the trees stand closely in the rows, and have sufficient foliage to shade the trunks, this will not be necessary. In about ten days after waxing the bud will have sufficiently united with the stock so that the wax and paper may be removed, and about a week later the raffia should be cut and removed. Care should be exercised, however, in the last regard in that if the stock is growing very rapidly the raffia is apt to girdle it. In such a case the raffia should be cut sooner, or if the bud is not sufficiently united, retie more loosely.

STARTING THE BUD INTO GROWTH.—If the budding has been done in June or earlier and the buds are to be started into growth the same year, the trees should be haded off at the time the raffia is removed—about 15 days after the budding. Cut off the stock about one and a half to two inches above the bud, allowing the top to remain attached at one side by a small piece of wood or bark. These tops should then be broken over and laid overlapping each other in the row, thus providing shade to the buds and aiding in the carrying off of excess sap and preventing to a considerable extent an excessive sprouting from the root. In about two weeks the cion bud will have started into active growth. The top of the stock should then be re-

Fig. 1. Flute bud starting into growth. Three weeks after setting.

Fig. 2. Young trees seen in September, coming from bud set the preceding June. Height 20 inches. These trees are marketable the winter following the budding.

moved entirely, close to the bud. In sections subject to high winds, the young shoots should be staked. See that all buds and shoots from the stock are taken off, as they are a material drain on the reserve food supply in the stock.

If the budding has been done late in the season so that the trees can not be headed back before August 1, such heading back had best be deferred until the following spring, just about the time that growth starts. There is some danger of the buds being killed during the winter, or injured by excessive wet weather. It is therefore preferable in such cases to put the buds somewhat higher on the stock than when the trees are to be headed back in June or July. Trees coming from stock headed back about the middle of June to the first week in July will make from fourteen to twenty inches growth the same season, and usually mature thoroughly, so that there is no danger of killing back during the winter. Such young trees could be put on the market the winter following the budding. Trees from stock that has been headed back in the spring will make a straight growth of five to seven feet during the season.

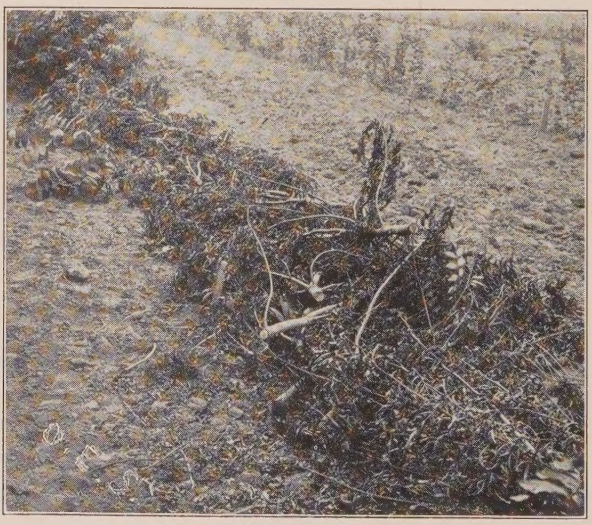

Fig. 3. California Black Walnuts budded to English. The stock has been headed back the second time and piled in the row to furnish shade to the young shoots starting from the buds.

Fig. 4. Shoot of English walnut, showing buds to be employed in budding at A. Notice that these buds grew the preceding year. The branch is three years old.

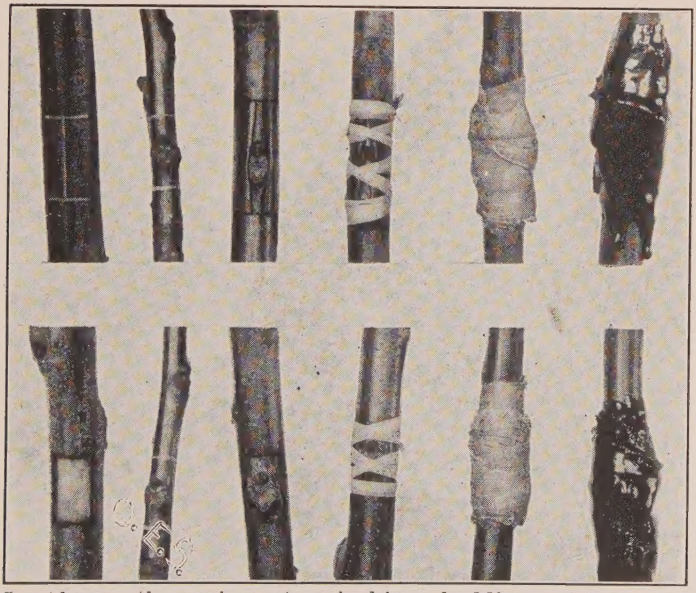

Fig. 5. Above—the various steps in hinge budding. Below—the same for flute budding. Reading from left to right—the stock cut, the bud cut, the bud set, the bud tied, the bud wrapped with waxed cloth, the bud waxed and completed.

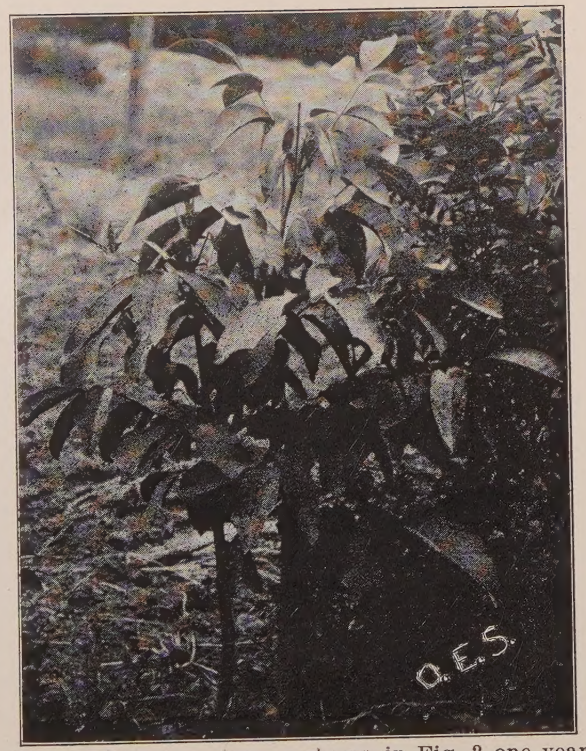

Fig. 6. The same tree as shown in Fig. 2 one year later. Height about 4 feet.

Fig. 7. Two trees as seen in September, coming from buds set the preceding July and headed back the following spring. Height about 6½ feet. Note the single straight stem as compared with Fig. 6. These trees are marketable the second winter following the budding.